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# ANTEFLEXION OF THE UTERUS:

ITS ETIOLOGY AND ASSOCIATED PATHO-  
LOGICAL CONDITIONS.

BY

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Professor of Gynecology in the N. Y. Polyclinic and Gynecologist to  
Bellevue Hospital.



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*Reprinted from THE AMERICAN JOURNAL OF OBSTETRICS AND DISEASES  
OF WOMEN AND CHILDREN, September, 1883, and December, 1884.*

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# ANTEFLEXION OF THE UTERUS:

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### 1. *An Outline of the Anatomy of the Position and Surroundings of a healthy Uterus.*

A normal uterus is a decidedly firm fibro-muscular body, about three inches in length and about two inches at its widest part; is pear-shaped, tapering down to a little below its middle, where it is smaller than at any other point. From this point down it is about one inch wide. It is somewhat flattened antero-posteriorly, the posterior surface being more convex than the anterior. Running lengthwise through it is a small flattened tube, somewhat constricted at its centre and widening above.

The average depth of this channel is a little over two and a half inches. The uterus is to a considerable degree flexible and elastic, and when pressure is made on the fundus or upper portion, it bends chiefly at a point a little below its middle, just opposite the constricted part of the lining membrane known as the os internum, or isthmus. On account of the solid and elastic nature of the organ, it does not bend sharply, making the central, normally flattened tube form an acute angle, nor can it be fairly compared to the bending of a rubber tube with a relatively large lumen, of which the concave side then forms an acute angle, and totally occludes the canal at the point of curvature. It bends with a curve such as would be made by a rubber tube with very thick walls and small lumen.

Even when bent extremely, the canal describes a parabolic curve. Where the walls are very much thinned and the cavity distended, the anterior wall may make a flexion, somewhat like that of a tube of large calibre and thin walls, but such cases

are rare. When uninfluenced by congestion or erection, the normal uterus is held suspended nearly in the centre of the pelvic cavity, the axis of which crosses the long axis of the uterus just below its middle. The centre of the lower end of the uterus, the cervix, is somewhat posterior, and the centre of the superior end, the fundus, is a little anterior to the curve known as the axis of the pelvis. The top of the fundus is somewhat below the brim of the pelvis, and the cervix is below and behind the centre of the pelvic cavity.

The uterus is held in position chiefly by the fasciæ and connective tissues of the pelvis, and by the reflections of the peritoneum, which, together with the fasciæ and connective tissues, form more or less distinct ligaments: Utero-sacral, utero-vesical, and broad or lateral ligaments. In all of these there is more or less muscular tissue, and they are curved and so elastic as to permit of considerable mobility of the uterus as a whole, especially upward and downward, and backward and forward. All of these ligaments have their attachments to the uterus below its middle, except the lateral or broad ligaments, which, covering it anteriorly or posteriorly, project from its sides and attach it to the pelvis in such a way as to give it a forward inclination, and the round ligaments which tend to prevent its extreme backward displacement, and when contracted draw the uterus forward.

The connective tissue, usually termed cellular tissue, by its vast quantity and disposition, not only helps greatly to strengthen the pelvic floor and retain the uterus in position, but on account of its network structure, it also allows free elastic motion to all the pelvic contents, and, together with the immense number and size of the blood-vessels, renders the contents of the pelvis so mobile and elastic in character as to give them a power of adaptability not very different from that of blood or water.

The elastic contractility of the muscles and connective tissues—that is, the heart, the muscles of the arteries, the muscles of the ligaments, perineum and abdomen, the connective tissue of the skin, abdominal and perineal walls of the ligaments, the fasciæ and so-called cellular tissue of the pelvis—unitedly have an influence which I will term the vital musculo-connective-tissue force.



The connective tissue and certain muscles, by their cohesive and contractile strength, prevent undue relaxation and displacement, while their structure and disposition admit of motion. And the adjustable pressure of the abdominal and arterial vessels, together with the heart's action, keeps up an ever varying but more or less equable pressure.

2. *The Dynamics of the Pelvic Cavity, or the Influence of Forces in causing Anteflexion.*

The influence of the atmosphere, although universal in exerting pressure on all things on the earth's surface, has little to do with keeping the pelvic organs in place by opposing gravity. If this force is to act as a retentive power by counteracting gravity, the vessel must be rigid and fixed above as well as on the sides and impermeable to air. So far as the retention of the pelvic and abdominal organs is concerned, atmospheric pressure, by opposing gravity, helps to retain only those organs which, when the diaphragm is arched upward, lie beneath the ribs, as the liver and stomach, and it only acts in this way on them when the ribs and diaphragm are made rigid by muscular contraction, as in holding the breath. This is why we hold our breath when falling or in jumping. It does not act in the same way on the pelvic organs, for the abdominal walls can be made rigid only by the downward action of the diaphragm, and thus the vessel has a piston acting downward and tending to drive out, instead of tending to retain the organs in place, by keeping off downward pressure.

Gravity acts upon the contents of the pelvis as it does upon the semi-solid, elastic, and mobile contents of a rigid cylinder with a flexible bottom, the top of which opens into another flexible cylinder, also filled with an elastic ever-changing mass, falling and rising at all times with more or less force.

If the perfectly normal uterus in a healthy nulliparous woman has a natural anterior inclination and also a slight natural anterior curvature, and if it is so suspended in the pelvis that it is free to bend forward at or above its middle without resistance so far as the ligaments are concerned, except perhaps, the slight restraint exercised by the upper borders of the broad ligaments, we may ask:

What is it that prevents a normal uterus from bending forward at or above its middle when the person stands erect or

when it is pressed upon by the action of the diaphragm, the abdominal muscles, etc.?

1. The firm and elastic nature of the tissues of the uterus permits of motion, but tends to preserve its normal shape.

2. The forward inclination and slight anterior curvature of the normal uterus puts it in the best possible position to enable it to withstand both continued and sudden waves of force from the action of the diaphragm and the abdominal muscles. When standing or sitting erect, the pelvis of a normally formed woman is carried backward, so that a plumb-line dropped from the front of the soft tissues covering the first or second lumbar vertebra will pass through or in front of the os pubis. When standing erect, as the central part of the spine curves forward, the sacrum and coccyx are carried backward, and the floor of the pelvis is made more taut and firm than when the abdominal muscles are relaxed and the spine is straightened as it is in the squatting or reclining postures. Postures that make tense the abdominal muscles also make tense the floor of the pelvis, and those that relax the floor of the pelvis also relax the abdominal walls.

If we represent the abdominal and pelvic cavities by cylinders, the axis of one is not continuous with the other, but they form an obtuse angle of  $160^{\circ}$  or more to each other; thus, as the wave of motion caused by the diaphragm passes directly downward, it passes through the mass of intestines, and as they are attached and fixed posteriorly, they deflect the wave somewhat forward and downward on the elastic anterior abdominal walls, and from there it is deflected backward and downward into the pelvis, and is thereby very much modified when it reaches the uterus. Now, if the long axis of the uterus is perpendicular to the plane of the pelvic brim, or better, if it is somewhat anterior to the pelvic axis, the deflected and modified wave would strike the very top of the fundus, and glide over and around it, and spend its remaining force chiefly on the floor of the pelvis. Of course, blows upon, or force produced by sudden contraction of the abdominal wall would pass backward and be received in the same way. Old men who have difficulty in urinating, bend the body forward, not only to relax the perineum and pelvic floor, but also to carry backward the abdominal wall, keep it rigid by voluntary con-



traction, and thus transmit directly the force of the diaphragm on the bladder, and for the same reason, when one strains at stool, he leans very much forward, so as to direct this force directly backward on the rectum.

Postures, therefore, which tend to make the pelvic cavity a direct continuation of the abdominal cavity may be injurious by bringing the uterus directly under the diaphragm; but it must not be forgotten that as long as the uterus retains its position and normal relations to the pelvic brim, it is in the best possible position to receive waves of force coming into the pelvis; for as the pelvis is turned up, the uterus is also lifted, and when the brim of the pelvis is directly under the diaphragm, the long axis of the uterus is directed against the downward motion. Besides, when sitting at ease, as the free borders of the ribs approach the pelvis, the abdominal walls are relaxed, and thus much of the force of the diaphragm is dissipated, being expended mainly on the relaxed abdominal wall anterior to the pubis. As the spine is straightened the pelvic floor is relaxed, and the mobility of all the organs is very much increased, and they offer but very little resistance to being carried backward against the rectum. This is why we can best examine the pelvic organs with the patient on her back, with legs flexed and backbone straightened out, on a flat table; but we must not be deceived by taking it for granted that the uterus is equally movable in all other postures.

Again, any work which requires more or less rigidity of the body, and thereby necessitates tension of the abdominal muscles in the sitting posture, may be very injurious—*e. g.*, working a sewing machine with the body inclined forward, etc. A tightly-laced woman usually sits erect, for in that position she is most comfortable. It is surprising how few anatomists can give a correct answer to the question as to where a plumb-line dropped from the anterior surface of the second lumbar vertebra will intersect the pelvis. Writers who ignore this special relation of the pelvic to the abdominal cavity naturally overestimate the mechanical influence and power of pressure from above on the uterus.

3. *Flexion is prevented by the Vital Musculo-Connective-Tissue Force*, or the sustaining power of the surrounding flexible, elastic, and adjustable tissues which during life are filled

with blood, fluids, gases, etc. These are all kept closely packed by the blood pressure and the elastic contractility of the skin, muscles, fasciæ, and connective tissues that make up the floor of the pelvis and the abdominal walls. This force is always more or less active, and when the abdominal muscles are tense, it is one of great power, and not only helps to keep the organs in place, but regulates the pressure on the numerous blood-vessels and intestines of the abdomen, and, when opening the abdomen, some of the shock, so frequently observed when a part of this pressure is removed, may be due to the great disturbance to the circulation caused by removing this pressure from the walls of all these vessels. When standing erect, the central part of the spine bends forward, the ends bend backward, and the abdominal and perineal muscles are made tense so as to give power to counteract the downward force of gravity by bringing into full play this sustaining force. So important is this influence that it cannot be left out when considering the dynamics of the pelvic cavity.

In studying the influence of indirect pressure, such as is made by the diaphragm, abdominal muscles, blows, falls, etc., in fact all pressure except that made directly by solid bodies in contact with the uterus, we must regard the pelvis as a cylinder with an elastic top and bottom, filled with fluid or rather a mass of tissues filled with blood, fluids, and gases, and so elastic and mobile as to transmit force, and be governed by very much the same laws as though it were fluid. A great part of this mass is composed of innumerable elastic intercommunicating tubes (blood-vessels). Therefore, when the floor of the pelvis is tense, force applied from above on the elastic abdomen, or from the diaphragm, is transmitted more or less equally to all parts of the pelvis, in front, behind, and around the uterus, with as much or nearly as much power as on the top of the uterus. And while the uterus is surrounded by these elastic and adjustable tissues in the living body, it is in a measure sustained in the same way as a flexible sea-weed is when surrounded by water. In other words, the weight of the fundus tending to fall forward and bend the uterus on itself is very much less than it would be out of the pelvis. The acting force of gravity to flex the uterus would be the weight of the uterus minus the average weight of the contents of the pelvis.



Advocates of the mechanical pathology of uterine displacements have overlooked this influence, which greatly modifies all indirect forces acting on the pelvic organs, and have, therefore, exaggerated the effects of falls and sudden efforts in producing anteflexion, and are naturally led to rely too much upon mechanical support toward effecting a cure. Of course, the effect of downward pressure, when very sudden, as in the act of coughing, although much modified by first impinging on the elastic abdominal walls, would for a moment flex the uterus to some extent before the wave of motion would have time to reach the floor of the pelvis, or be evenly distributed; but the natural elasticity of the uterus and the surrounding tissues would cause it to rebound and in a moment resume its normal degree of curvature, and this would be the case even though the pressure from above were made continuous, as in lifting, straining at stool, or lacing. Destroy this elasticity and mobility, either by relaxing the supports so that the uterus rests against the unyielding pelvis, or by shortening or condensing the ligaments or surrounding tissues, and then, in addition to disturbed circulation, the slightest force may have a baneful influence.

Constant pressure, such as is caused by lacing, undoubtedly tends to force the floor of the pelvis down, and in delicate women where the muscles and fasciæ are soft, flabby, and wanting in vitality or tone, the uterus may be carried down so low, together with the floor of the pelvis, as to flatten and bend forward the cervix on the body. Lacing interferes with the normal action of the abdominal muscles and the vital musculo-connective-tissue force generally.

The effect of downward pressure on the healthy uterus, therefore, tends to produce general prolapse rather than anteflexion.

When a uterus is soft, what causes it to become flexed when the person is erect, or when there is downward pressure produced by the action of the diaphragm and abdominal muscles?

1st. The normal position of the uterus is one of anterior curvature, and on this account the weight of fundus, less the average weight of the contents of the pelvis, would tend to increase the normal anterior curvature, if the tissues are soft.

2d. Pressure from above tends to general prolapse of the



whole of the pelvic floor, but since the pouch of Douglas and the bladder are the least resisting, or perhaps I should say are the most elastic parts of the pelvic floor, these two points would be the first to yield. Descent of Douglas' pouch would make taut the utero-sacral ligaments that are attached to the uterus just at and above the vaginal junction posteriorly; and therefore, until they give way, they would hold upward and backward this particular part of the uterus, while the distention of Douglas' pouch would push down the abnormally soft cervix in the direction of the vaginal axis. At the same time, the utero-vesical ligaments, having their attachments to the pelvis below and in front, would be made taut only at their higher points of attachment to the uterus, and as this is somewhat above the point of attachment of the opposing utero sacral ligaments, the upper part or fundus of the uterus would be pulled downward on the bladder. Therefore, if these forces were to act on a soft uterus, we would have anteflexion, but were they to act on a firm and resisting uterus, we would have either anteversion or retroversion, according to the degree which Douglas' pouch is displaced, compared with the extent to which the bladder gives way.

3d. Although I do not accept all of Hart's views as to the floor of the pelvis being divided into two segments, still, if he will allow me to prolong or attach his anterior and superior segment to the posterior wall of the pelvis, by the utero-sacral ligaments, and to extend or attach his inferior and posterior segment to the os pubis, by the fasciæ and the pubo-coccygeal muscle, I will accept his statement that for the uterus to escape out of the pelvis through the valvular overlapping opening, the border of the anterior segment must be pushed forward and the posterior segment displaced downward and backward.

Now, as the vaginal portion of the cervix is below the anterior segment and is just above the posterior segment, it is easy to understand why the uterus becomes anteflexed when soft, or retroverted when firm, as it is either pulled or pushed out of the pelvis. The soft cervix is pressed forward and crushed between the upper and lower segments, while the fundus is crowded forward, or falls backward, as the upper segment sinks lower in the pelvis.

4th. The loss to a greater or less extent of the vital musculo-connective force—that is, feeble circulation, weak and flabby muscles, overstretched, relaxed, contracted, or otherwise abnormal fascias and connective-tissue, etc.—so frequently associated with and due to the same general causes. Of course, besides softening of the uterus, other pathological-changes, such as local atrophy of the walls, would greatly change and modify the influence of mechanical forces acting on the uterus; but of this we shall speak later.

Downward pressure from the abdominal muscles may tend first to produce some exaggeration of the normal anterior inclination and curvature; yet, as a rule, in the otherwise normal uterus, prolapse beyond a certain extent will produce retroversion, for after a limited amount of descent the cervix is forced forward by direct contact with the curved tissues behind it, and, unless it bends, which it is not likely to do if normal, the fundus must go backward. Backward displacements are of much greater importance, pathologically, than anterior displacements;

First, because the degree of rotation of the uterine axis from its normal position is so much greater; and

Second, the broadside of the organ receives, with more direct and greater force, all downward pressure, for in retroversion the long axis of the uterus is parallel with the plane of the pelvic brim.

Third, the circulation may be not only greatly interfered with by the greater degree of rotation, but the converging ends of the utero-sacral ligament may strangulate the veins where they pass from the uterus on its sides.

Fourth, the uterus is abnormally fixed in the pelvis, and its mobility is in a great measure lost, and with it the normal action of the vital musculo-connective-tissue force is also in a measure lost.

#### *Influence of the Bladder on the Position of the Uterus.*

In making examinations for uterine disease, the bladder rarely gives any perceptible trouble, and except when nearly full or rather considerably distended, one could not ascertain by bimanual examination that there is any water in the bladder. It is a soft and very elastic organ, and, except at its base, is free to move in all directions so far as its attachments are con-

cerned. Except when considerably distended, it has little or no influence in changing either the shape or the position of the uterus. When greatly distended, it acts as a more or less fixed solid and firm body, and carries the uterus backward, and may tend also to straighten out any anterior curvature. When partly filled, or when not distended, it yields to pressure in any direction, and merely goes to make up a part of the flexible and adjustable mass that surrounds and supports the fundus uteri. Of course, there is never a vacuum in the pelvis during life, for the elastic abdominal walls, by contraction or distention, make up for either loss or gain, and therefore, when the bladder is emptied, the space is readily filled up by the surrounding tissue.

*The Influence of the Rectum on the Uterus.*

The rectum, when empty, or only slightly distended, is also a movable or elastic body that helps to make up the adjustable mass of tissues of the pelvis. When greatly distended, it pushes the cervix uteri to one side, and if it is not habitually distended has but little influence on a normal uterus. But when habitually distended, especially its lower part, it greatly interferes with the normal circulation in the pelvis, and by its distention and pressure stretches the pelvic fasciæ and uterine ligaments to such an extent, that more or less prolapse of the uterus occurs; and when the uterus is soft, it tends to produce flexion of the cervix. Besides producing distention and relaxation of the pelvic floor, an impacted rectum is nearly always associated with voluntary straining at stool, which, together with the relaxed and feeble connective tissue, the soft and flabby muscles, and the weak and stagnant circulation so common in such cases, will invariably induce either anteflexion, or more frequently retroversion and retroflexion.

Some cases which I have seen lead me to believe that the tissues which sustain the rectum may stretch and allow prolapse, not only of the lower end of the rectum, but of the upper end also; that the sigmoid flexure and the lower end of the descending colon may prolapse, and when distended with feces help to relax the left broad ligament. This, in some cases, may account for the fact that the left ovary and Fallopian tube are so commonly displaced backward; the tube and ovary falling backward and downward as the intestine is emptied. Besides, the im-



pacted feces may compress and obstruct the veins from the left pampiniform plexus, and thus cause congestion and sagging of the ovary and tube on the left side, so common in women habitually constipated.

*The point of greatest Curvature in Anteflexion.*

The exact location of the point of greatest curvature in an anteflected uterus is often very difficult to determine. As a rule, it is just about the os internum; first, because at this point the uterus is slightly smaller than at any other point; second, it is at this point where the cervix and corpus unite, two bodies somewhat different in structure; third, at about this point the large blood-vessels enter and leave the uterus, and thus tend to weaken the walls somewhat; fourth, because just at and above the os internum the uterus is free, while the cervix, just below this point, is comparatively fixed by a firm supporting ring formed in front by the attachment of the utero-vesical, and posteriorly by that of the utero-sacral ligaments. Flexion may take place either above or below the os internum. When the vaginal part of the cervix is abnormally long, or large and soft, it in time becomes bent forward, and the flexion may be found at the vaginal junction. Where there is flexion of the body, or the caving in of one cornu, it is the result of local atrophy or extreme dilatation and thinning of the uterine walls, perhaps flexed or distorted by peritoneal adhesions.

*Time of making Examinations.*

The time of making examinations to decide the exact degree of flexion should be carefully considered, for without doubt the amount of curvature will vary at different times; for instance, just before and just after menstruation. The best time would be during one or two weeks between the menses, when the uterus is usually quiet. If the uterus is an erectile organ, then erotic excitement, by engorging the blood-vessels, might tend to straighten the uterus. If some authorities are right about the function of the round ligaments, the uterus would be displaced forward during erection.

Special conditions of the nervous system would probably have some effect on the shape of the uterus; for instance, when influenced by fear or intense mental excitement, a part of it may be shrivelled up, as the penis of a youth is when being examined the first time for venereal disease.

*Variability of the Generative Organs.*

All gynecologists must have observed how greatly the features of the external organs of generation vary in different races and in different individuals. The depth of the perineum, the distance of the clitoris from the meatus urinarius, etc., are all variable, and the length and shape of the labia are as diverse as those of the nose. I am certain that this normal variability characterizes the internal organs as well, and on this account we cannot exactly lay down the law as to what will be the curve of the uterus. Because a woman is round shouldered and has soft muscles we have not sufficient ground for pronouncing her abnormally shaped, and to be best treated by braces; and when the uterus is not found of the exact shape of an absolutely perfectly formed uterus we have not sufficient grounds for pronouncing it a case of pathological curvature to be cured by artificial support.

*Frequency and Degree of Anteflexion.*

It is a fact that, in the nulliparous women which a gynecologist examines, the uterus may be called abnormally flexed in a very large percentage; but in deciding what the normal curvature is, it must not be forgotten that almost all of these women come to be examined because they have uterine disease, and the condition of their uteri cannot fairly be used in estimating the normal standard.

All nulliparous women have some degree of anterior curvature of the uterus, and this may vary from ten to thirty degrees without denoting an abnormal condition. That is, while the uterus is quiescent and uninfluenced by congestion, etc., the angle made by the junction of the two lines drawn, one in the direction of the axis of the cervical canal, and the other in that of the canal of the body, might vary from an angle of one hundred and sixty-five to one hundred and thirty-five without being an abnormal curvature; when it exceeds this or is most of the time found less than one hundred and thirty-five degrees, it may fairly be called abnormal.

*Etiology:*

Congenital influences which prevent perfect development of the organs of generation greatly predispose to anteflexion of the uterus, and undoubtedly have much to do with the premature atrophy and degeneration so frequently associated with it.

In the working of the law of the "survival of the fittest," the organs of generation play an important rôle. It is a merciful law which prematurely atrophies the generative organs of the degenerate, and thus puts an end to their reproduction in offspring. The prevalence in a community of congenitally anteflexed uteri, or, to speak more accurately, imperfectly developed anteflexed uteri, may be one of the first indications of race degeneration. The functions of the generative organs are not a necessity in the physical organization of the individual. They do not bear the same relations to the existence of the individuals as do the heart, liver, stomach, kidneys, etc. Life can go on in the individual without them. They are the last to develop; therefore they are most likely to suffer from imperfect development and degeneration when the supply of vitality is below par. Their full and proper development would seem to depend upon a surplus of vitality.

In civilized communities, especially among the well-to-do classes, the law of the survival of the fittest is greatly interfered with by the protection afforded to many of those with faulty constitutions. This causes many feeble organizations to reach puberty which otherwise would have died in childhood.

Women, more than men, are debilitated by the enervating influence of modern life—want of healthy exercise and fresh air, etc. Besides, they are equally influenced by the general tendency to develop the intellectual faculties at the expense of the physical health, and in this way the somewhat extraneous organs of generation are the first to suffer. Again, in civilized communities, the functions of these organs are kept under restraint; that is, women marry late in life, and when this is the case for several generations, this enforced restraint (disuse) of an organ may have a decided influence toward causing degeneration or atrophy. The average highly civilized woman does not bear enough children to keep up by use the full development of the uterus, and thereby a normal relation with the other organs of the individual.

Much is done to avoid having children, and many women have none or only one or two. In the majority of cases, the functions of these organs are perverted and abused, or they are kept greatly under restraint. Exercise, use, work, call it what you like, performance of function, is essential to the perfectly



normal life of all organisms and their organs, and the violation of this great law by disuse results in degeneration.

Menstruation may have been intended by the Creator to take the place of the free exercise of the functions of these organs, and thus compensate for the restraint and disuse so much and so necessarily practised by civilized races. It seems to regenerate a part at least of the uterus. This may also account for the almost constant muscular contractions which have lately been described as taking place in the uterus.

In a woman having a deformed pelvis, or in other respects showing imperfect development, we usually find an abnormally small uterus, which is, as a rule, anteflexed; but not infrequently we find a well-formed and fully-developed uterus in a small and delicate woman. Sometimes we find a strong and vigorous woman with a small, imperfectly-developed anteflexed uterus, and most of these come to be examined because they are sterile, and not on account of dysmenorrhea, etc. Imperfect development, and certainly premature degeneration, is the penalty of violating natural laws. Yet some of the above may be explained by saying that this may be the way that Nature takes to limit somewhat the too rapid reproduction of the race as it becomes more capable of self protection; for the greater the intellectual standard of a community the less the number of children born. My observations made in the past twelve years lead me to believe that the more refined the intellectual development the weaker the normal venereal desire is, among women at any rate. It is very commonly absent, and when existing it is frequently abnormal. Among the working class it is more common and usually normal, and is kept under control by physical labor. Excessive physical labor subdues, but does not crush it out like excessive intellectual development. This may be explained by the fact that physical work does not, like mental work, tend so much to injure the nervous system, and by the fact that the latter is so often associated with an enervating sedentary life.

Before puberty, the uterus is soft and relatively long, and in early childhood the cervix is considerably larger than the body of the uterus. In children, after death, the uterus is so frequently found anteflexed that some good authorities believe that to be the normal position of that organ before puberty, and

that if development is normal, at the age of maturity it will have grown larger and become straightened. If the living uterus of childhood is in the same position as it is commonly found after death, then all that is necessary in most instances to account for the occurrence of small anteflexed uteri is to find the cause of the failure to develop, or that which arrests complete normal development when once begun. This may be due to hereditary influences directly affecting the generative organs, or it may be due to the want of harmonious development, the effect of bad general health or bad educational influences, or to bad hygienic conditions. Perhaps most cases are due to several of these influences combined.

The condition of the general health has much influence on the development and position of the uterus. Bad general condition of the blood; anemia; stunted growth due to poor or imperfect food; want of fresh air, healthy work and exercise; excessive or unhealthy development of the nervous system; fevers, etc., especially any cause which draws excessively upon or weakens the blood or nerves during the period of development from ten to eighteen years of age, greatly predispose to anteflexion. Many of the cases classed as congenital are undoubtedly merely flexions made permanent before maturity is reached. Of children born of healthy parents, few reach full development in perfect health; and just as the greater number have more or less chronic catarrhal disease of the pharynx, so also have they more or less leucorrhea, due either to a partial degeneration or catarrhal state of the mucous membrane of the uterus.

Many have what we call slight granular erosion of the os uteri; in others, this degenerate state of the mucous lining extends to the os internum and uterine cavity, and the uterus gradually becomes flabby—if it has ever developed—and flexed, and the nerves of the membrane at points become hyperæsthetic, etc.

In those who inherit or acquire a rheumatic diathesis, or a tendency to catarrhal disease (scrofula), exposure to malarial poison or to cold may induce endometritis, and finally lead to anterior displacement. Anything that weakens or softens the uterine walls may cause anteflexion; and anything that in-

creases the size of the uterus tends to produce, or at least to increase, anteversion.

Child-bearing is usually enumerated as a predisposing cause of anteflexion, but I prefer to say that too frequent child-bearing or an abnormal labor or puerperal state or labor in an unhealthy woman may result in anteflexion. Child-bearing is as truly a natural act as eating, yet one would hardly be justified in saying that eating predisposes to indigestion. During pregnancy, as the uterus enlarges, it is anteverted, but when so in an otherwise healthy woman, it cannot be considered abnormal.

The enlarged state of the uterus soon after labor, together with the relaxed condition of the ligaments, causes anteversion, and if the patient is imprudent in getting up too soon, the anteversion may be made permanent, or, on account of the softened state of the uterine walls, anteflexion may result.

Subinvolution of the uterus or ligaments may end in anterior displacements. An enlarged, hard, and anteverted uterus is characteristic of old subinvolution, and it is not uncommon to find a small fundus bent sharply forward on a large subinvolted cervix, or the large soft cervix bent forward in the vagina. Uneven or unequal involution may thus cause an anterior displacement in the same way as unequal development. Specific vaginitis extending to the endometrium, by enlarging the uterus, causes anteversion and may finally result in anteflexion. Inflammation extending to the parametrium, especially pelvic peritonitis, may, by the contraction of ligaments, or adhesion, result in anterior displacement, but, as a rule, it causes lateral or posterior displacements. Unequal development of the walls or segments of the uterus may cause anteflexion.

Imperfect development of the vagina, absence of Douglas' cul-de-sac, or the presence of cicatricial bands about the vagina which push or draw the cervix uteri, may cause anteflexion. An abnormal utero-sacral or other ligament may also cause anterior displacement.

The cervix, when abnormally developed, as when too long to find free play in Douglas' pouch, will be forced forward in the direction of the outlet of the vagina, and thus will necessarily flex on the body, or displace the fundus uteri backward. Fibroid or other tumors may displace the uterus forward by their



weight or pressure, or may increase the length and size of the posterior wall, and thus cause forward flexion.

Habitual constipation, straining at stool, etc., during the period of development, during menstruation, or at any time when the uterus is soft and weakened by disease, may cause anterior displacement. The same is true, under like conditions, of lacing, excessive or violent exercise, or remaining too long in the standing position. But it must not be forgotten that pressure transmitted through the abdomen, containing only its usual contents, is not all spent upon the fundus uteri, but more or less equally on its sides, on the bladder, rectum, and the whole floor of the pelvis, and that some of this force thus tends to support the uterus in its upright position, and the resultant of the force is rather a general downward movement of the floor of the pelvis, and everything attached to it, than the displacement of one organ. For this reason, I doubt very much that a blow or fall or any other external force than one continuously acting on an abnormal uterus, would be likely to result in causing serious anteflexion. Such force as would be caused by lifts, strains, etc., may cause prolapse, retroversion, and retroflexion, or tear a ligament, and thus cause serious local disease; but, except when acting together with some predisposing cause or abnormal condition, I have never seen an anterior displacement caused thereby.

I have no doubt that the anterior change of position and flexion caused by one physical bimanual examination is often greater than that caused by a blow or fall. It is true that such examination may do harm when predisposing conditions exist. Constant pressure, such as is caused by lacing, tends to depress the floor of the pelvis and carry the uterus downward and backward, and may flex it forward when it is soft."

The influence of the upright position on flexion has not been fairly stated by authors; for the direct influence of the weight of the fundus in flexing the uterus has been greatly overestimated. I am satisfied that most of the local pain is due to congestion produced by the upright position, congestion in around the uterus, and to the general prolapse of all the pelvic organs, and is rarely solely due to the weight of the fundus acting on the seat of flexion. Stand a uterus up on its end outside of the body, and gravity acts with the full weight of the

fundus; but in the pelvis of a living woman it acts only with the weight of the fundus minus the average weight of all this cavity contains, or rather its elastic media, elastic tissue, blood, gas, etc. In cases where the nerves of the lining membrane are hyperesthetic, this slight weight probably has some influence in causing additional pain, especially when the point of curvature is such as to allow an up-and-down motion from a slight cause. It is true that often a well-fitted anteflexion pessary will afford great relief, and usually, when it does, it is not by straightening the uterus and thus preventing occlusion of the canal, but by steadying the uterus and preventing this up-and-down motion of the fundus, and by counteracting, to some extent, the bad influence of the prolapse which is so often associated with anteflexion.

A sedentary life which prevents general development of the muscles, or causes them to become soft and flabby, may give rise to uterine disease by inducing stagnation of the pelvic circulation and by furnishing conditions which stimulate perverted and abnormal erotic excitement. Many cases in which the vaginal os is normal and the supra-vaginal cervix is flabby and elastic and apparently elongated, with a small ball of a fundus bobbing about, seem to be produced by the effect of too frequent erotic excitement on the circulation. Such cases will usually admit that they have frequent and often abnormal sexual desire, and in most of these cases there is a congested fullness about the left broad ligament which reminds one of the varicocele on the left side in frail young men.

### *Pathology.*

For several years past, I have given up the belief that anteflexion frequently causes dysmenorrhea directly by mechanically closing the canal and thus obstructing the menstrual flow. Where there is obstructive dysmenorrhea, I believe it to be due, as a rule, except in rare instances, to stenosis of the os uteri at some point, or to clonic spasm at the os internum; and, in the majority of cases of dysmenorrhea in anteflexion, I think it is caused by the hyperesthetic condition at or near the os internum, combined with more or less stenosis at this point—stenosis due to degeneration, contraction, and atrophy, and not to occlusion caused by the sagging or bending of the

uterus. Of course, I except those cases in which the dysmenorrhea is caused by salpingitis or ovarian diseases, or other diseases that may be associated with anteflexion.

In cases of dysmenorrhea with anteflexion, the passing of a probe or sound through the os internum causes severe aching pain and frequently the patient will voluntarily exclaim that it causes the same pain and sometimes the same reflex disturbances as menstruation. In many of these cases, the withdrawal of the sound is followed by blood. It may be asked: Why is the os internum and the spot just above it so hyperesthetic, while the cervical canal below this point is not in this same condition? I would say that, aside from the narrowing of the canal and probable spasmodic contraction at this point, the membranes are different in kind, and for some of the same reasons that pharyngitis is much more common than stomatitis, degeneration may affect the mucous lining at the os internum, and not in the same way that of the cervix below.

One can never actually see the state of things at the os internum in such cases during life, but to me the mucous membrane and nerves seem to be in a condition somewhat, if not exactly, similar to the mucous lining in a case of phymosis, when inflamed or congested; it is exquisitely sensitive and irritable, inducing perversion of sexual function and serious reflex disturbances, and, like phymosis, tending to contraction of the orifices and loss of elasticity and capacity of expansion. Other cases of this disease, where there is flexion and hyperesthesia of the mucous lining of the canal, are comparable to a stricture of the urethra, especially in the prostatic and membranous portion, and in my hands the treatment of the two is in principle exactly the same, and, at least so far as the dysmenorrhea goes, is successful. Often simple stenosis of the os externum may be associated with flexion, and may be the real cause of the dysmenorrhea; but, if so, the contraction must be extreme.

The mucous lining at the point of curvature may be swollen and congested and menorrhagic, or it may be pale and degenerated, with thick, hard, and fibrous, rather than muscular walls, and these may be rigid and contracted. The latter is usually the case in the congenital type, or those in which the flexion was acquired before maturity. In other cases, the mus



cular tissue is scant, and the walls are composed of soft and flexible connective tissue, or they may be indurated and give evidence of old inflammation of the connective tissue, and these are usually the ones in which the flexion was acquired after maturity. The os internum is usually contracted, and is inelastic, the contraction being due to organic rather than mechanical causes. There may be dilatation of the uterine cavity above the flexion, and in such cases the os internum is found stenosed.

Anteflexions may be divided into two classes:

1st. Those which are usually termed congenital. In these cases, the curvature exists before puberty, or is acquired before maturity is completed, and is mainly the result of interrupted or imperfect development.

2d. Those in which the curvature takes place after full development. In these cases, the flexion is due to softening or loss of tone in the uterine walls, the result of general loss of health and local disease, or of local disease alone.

In the first class, due to or complicated by imperfect development, both the fundus and cervix are frequently bent forward. In other words, the organ is doubled upon itself, causing the axis of the cervical and corporeal cavities to form a parabolic curve, and the flexion is more or less fixed, often so much so that the whole organ may be found rotated backward, and be really both anteflexed and retroverted at the same time. As a rule, the point of greatest curvature is at some point between the vaginal junction and the os internum. The vaginal portion of the cervix is bent so as to conform to the long axis of the vagina, with the os directed toward the pubic bone. It is usually hard, abnormally small, flattened, and somewhat pointed, its anterior lip crowded forward, giving the cervix a snouty appearance. The anterior flexion puts on the stretch the posterior wall, pulls back and upward the posterior lip, and doubles up the anterior wall, which presses forward the anterior lip. The vaginal tissues of the anterior lip are, as it were, folded up, so that the vaginal junction appears to be very near the end of the anterior lip, while the vaginal tissues covering the posterior lip are smooth, and tensely stretched over the cervix up to the vaginal junction, which is usually more than an inch from the end of the posterior lip. The fundus is also

usually undersized, and is bent forward and fixed, forming a sharp angle with the cervix. The crowded tissues that unite the uterus with the bladder and the vaginal junction fill up, to some extent, the angle of flexion, and feel like a mass of adhesive tissue that unites the fundus and cervix, and at the same time appear to limit the degree of flexion.

In some of these cases, the cervix seems to be the only part displaced, and, as a rule, when only one part is bent forward it is the cervix. Frequently there is some erosion of the mucous membrane in and around the os externum, or it may be small and contracted, but in most cases, while the cervix is small, the cervical canal is open and free from active disease up to the os internum.

The os internum is in many cases abnormally small, and often exquisitely sensitive. Hyperesthesia of the os internum occurs in the degeneration and atrophy incident to old age, and in cases of degeneration occurring in the young, the same contraction may also take place. The introduction of a sound into the atrophied uterus of an old woman who is nervous and suffering from local trouble, or even who has no well defined local symptoms, will often give the same pain which is frequently caused by sounding the infantile anteflexed uterus in a young woman.

The uterine cavity just above the os internum is also frequently very sensitive to the touch, and bleeds readily. Sometimes the whole lining membrane of the body is painful to the touch, and the same sensations are induced as are felt during menstruation.

As a rule, the canal measures less than two and one-half inches, but in some it may exceed this. Often the vaginal cervix feels abnormally long, but usually in such cases the body is flat and abnormally short. It may be that the flexion is above the os internum in these cases, but this is not easy to determine; for often this apparent elongation of the cervix is due to the fact that all of the cervix is readily felt, being crowded down into the vagina by the flexion. Not infrequently the point of flexion is held abnormally high up and backward in the pelvis, and in these cases the whole organ is more or less immovable, and the flexion firmly fixed. This may be due in some cases to adhesion and contraction of the sacro-iliac liga-

ments, the result of inflammation, but it seems to me in almost all cases to be caused by early failure of development involving the ligaments; for in the early stages of development the uterus is relatively high. In other words, the descent of the uterus is arrested at the same time the complete development of the uterus is interrupted.

In many cases the uterus is low in the pelvis and abnormally near the pubes; and in some cases the vagina is small, short, and Douglas' cul-de sac more or less shallow. In these cases it is easy to understand why the cervix bends forward, for when the fundus is flexed forward, the cervix is forced backward, and if it meets resistance due to a short vagina, it is gradually bent forward in the long axis of the vagina. Obstinate and chronic constipation and tight lacing probably play an important part in producing those cases where there is much prolapse.

Frequently there is an abnormal fulness in the left broad ligament which may be due to old peri-uterine inflammation, but which I am satisfied is more frequently caused by faulty circulation in this region; the blood-vessels are in a condition resembling varicocele in the male, which is almost always greatest on the left side. Not infrequently this last condition is associated with a prolapsed ovary, as I have repeatedly convinced myself during laparotomy performed for dysmenorrhea. In some of these cases it may be that the catarrhal disease extends from the uterus to the Fallopian tube; I am certain that this is frequently the case in those due to gonorrhea. I have lately kept a number of cases under observation, without treatment, for the purpose of studying the course of this disease. In my service at Bellevue, both the subjective symptoms and physical examinations plainly indicated that from the vagina the endometrium becomes affected, and later the parametrium is attacked.

In those cases where the uterus is flexed after having been fully developed, the flexion is often movable or readily reducible, unless after flexion there has been peri-uterine inflammation leaving adhesion that binds the fundus down; of course, excluding the few cases of anteflexion that may be the direct result of the contraction of such adhesions. Sometimes the fixed cases of flexion due to arrest or imperfect development may be loosened by some such change as abortion, or perhaps by re-



tained menstrual blood repeatedly distending the cavity. But almost all cases of readily reducible anteflexions would seem to be the result of chronic endometritis or repeated congestion caused by frequent erotic excitement or some similar influence extending to the connective tissue, if not to the muscular fibres, and gradually softening or inducing atrophy of the walls at or near the internal os.

In these cases, the cervix may not differ much from the normal position and shape, while the supravaginal cervix, or the part that is bent, is relatively small, flexible, and sometimes apparently elongated to such an extent that the round and small fundus can be moved about *ad libitum*, often in any direction. Such cases may be sometimes found retroflexed, and during or about the menses may be found erect and moderately firm. When the cervix is bent forward in this class of cases, it is usually enlarged and hard, with more or less discoloration due to imperfect circulation, and the flexion is more decided and fixed than in the simple cases when the cervix is not displaced.

Rarely cases are found where the fundus seems flexed above the os internum, but, as a rule, such cases are those in which there has been peri-uterine inflammation, with resulting adhesions pulling the fundus sharply forward, and I believe flexion of the body takes place when the fundus is enlarged and soft, being rendered so by dilatation of the cavity, or left soft by receding inflammation or congestion.

I have seen two or three cases where the cervix was flexed forward and the fundus was flexed backward, but such cases are rare.

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In the first part of this paper, I undertook to show the following: The normal uterus is flexed forward, and so placed in the pelvis that downward pressure does not act directly on it. It is so suspended, surrounded and sustained by an elastic medium, the pressure of which is regulated by the heart's action and the contractility and elasticity of the muscles and fasciæ of the blood-vessels and the abdominal walls—the vital pressure—that the weight of the normal-sized fundus has but a slight tendency to increase the anteflexion; the body of the uterus being sustained and protected very much as though it were sur-

rounded by water. Many authors have overlooked these facts, and have been led to lay too much stress upon the effects of falls, blows, etc., in producing anteflexion, and have taught that bending closes the uterine canal mechanically, and thereby creates the symptoms, etc.

Anteflexion does not constitute the disease, but is the result of imperfect development or of disease—a condition associated with certain pathological changes in the tissues of the organ. The causes of these pathological conditions are, 1st, congenital influences; 2d, general and special causes tending to prevent perfect development, and thereby inducing premature atrophy and degeneration; 3d, diseases which soften the walls, or those which enlarge the fundus, or lengthen the cervix, or relax or overstretch the suspensory ligaments, etc., etc.

Except in rare instances, I do not think that the mechanical effect of the flexion causes the symptoms, dysmenorrhea, etc.; but they are due to the degenerate, hyperesthetic, and more or less contracted or stenosed condition of the tissues, chiefly at or about the os internum. In other words, the mere fact that the uterus is anteflexed has, as a rule, little to do with the disease or symptoms.

I now return to the continuation of my subject.

PREVENTION.—The true etiology of a disease, of course, indicates the steps to be taken to prevent it. As long as delicate children are born and enabled to reach maturity, women will suffer with small, imperfectly formed, and degenerated genital organs. We may expect to find anteflexed uteri among those children who, though born of healthy parents, are underfed or badly nourished, whose health was crippled by disease or bad hygiene before or during the development of the generative organs. To prevent anteflexion or imperfect development and degeneration of the generative organs, children with good constitutions should be kept in good health until fully matured, and delicate and stunted children should be so treated as to increase their physical strength and have a surplus of force for the full development of the generative organs. In the country, children are often underfed; while in large towns bad air and excessive mental tension and emotional excitement are the chief hygienic faults. Among the poorer class the law of "the survival of the fittest" is not so much interfered with, and

hence the feeble, relatively speaking, seldom reach puberty. This fact is, to me, strikingly illustrated by comparing my office practice with my hospital and clinical service ; in the latter a well-marked case of anteflexion is comparatively rare, while in my private practice this condition constitutes a large percentage. Good food and fresh air are always essential to good health, and are generally so considered. Yet it is not, as a rule, considered hurtful to children to begin absorbing mental training too early, and keep it up too intensely. Just when a girl is beginning to develop into a woman, while being urged at lessons and confined from twenty to twenty-three hours in the devitalized air of a furnace-heated house, she is allowed to become interested in society and emotional excitement, which too often leads to bad habits and nervous exhaustion. Of course, many girls have a sufficient surplus of strength to develop fully the organs of generation under all these disadvantages ; but even these constitutionally strong ones give way if, in addition, they have a prolonged or severe attack of illness, such as scarlet fever, typhoid fever, etc., and it is rare to see a girl pass from ten years of age to twenty without more or less anemia. It is during this time that the generative organs degenerate and lay the foundation for anteflexion, dysmenorrhea, sterility, or lacerated cervix, etc.

It is plain that good health throughout development is essential to a child. Besides good food, fresh air and exercise, the moral and mental environments should be healthful and not too stimulating and absorbing. To the constitutionally feeble, or to convalescents, besides good physical, mental and moral hygiene, the syrup or elixir of the hypophosphites, iron, selected and partially digested food should be given. It is surprising how much can be done by careful feeding with selected food suitable to age, etc., even with feeble, puny, stunted children ; but too often this careful attention about food, etc., is relaxed, and the children are left to judge for themselves, and are only seen or directed when really ill with some active disease.

Lacing without doubt has a marked influence upon the abdominal organs ; it prevents normal action of the abdominal muscles and directly compresses and displaces the liver and kidneys, especially the latter, and as it adds greatly to



the abdominal pressure and destroys the normal elasticity of the abdominal walls, it certainly tends to displace the uterus downward, and may increase anteflexion. The corsets which extend below the waist and compress the abdominal walls, are by far the worst.

Lacing, if begun early, can do great harm, and yet be so gradual as not to be noticed; it may, by destroying the functions of the abdominal walls, prevent their full development and permanently weaken them.

Local treatment, as a preventive in cases due to imperfect development, is hardly practicable, for usually flexion already exists when the first symptom (dysmenorrhea) occurs. In cases of flexion acquired after puberty, the prevention is indicated by the etiology. Local treatment, if given at all, should aim at stimulating healthy development.

TREATMENT.—These cases usually seek medical advice on account of dysmenorrhea or of irregular menstruation. Yet not infrequently a woman will bear with the pain for years, and finally consult a physician for sterility.

Sometimes menstruation is painful from the first, but many cases are preceded by irregular and usually scanty menstruation. I rarely make a local examination in unmarried women for either dysmenorrhea or amenorrhea, without first trying the effect of general treatment—suitable food, Bland's pills, syrup of hypophosphites, laxatives, etc., as indicated; often these measures give complete relief, they nearly always do good and prepare the way for successful local treatment. If leucorrhea be one of the symptoms—and it often is—I order half a gallon of hot water to be injected into the vagina once or twice in twenty-four hours. If the patient is under eighteen years, or is likely to be married soon, I usually defer a local examination for several months, and even longer if the symptoms are not urgent. After a fair trial of this treatment, I insist upon a local examination, for undoubtedly the longer local treatment is delayed after improving the general health, the more difficult will it be to effect a complete cure, and the more likely is it that the case will become complicated by ovarian or other peritoneal disease. Under the head of pathology, the physical conditions were minutely described. I made two distinct classes

for the sake of clearness, but practically the two often merge into each other.

By far the most common type among the well-to-do class is that where imperfect development is plainly indicated. Often the external genitals are small and undeveloped, and the vagina may be found narrow and short. The cervix is most frequently found near the vulva, small and hard, with its axis curved forward and parallel to that of the vagina. The anterior lip or vaginal part of cervix is short and frequently quite sharply flattened (snouty), while the posterior wall of the cervix is curved forward and put on the stretch, the mucous membrane smooth and the vaginal portion relatively long, as compared with the anterior lip. The fundus, flexed forward on the cervix, can be plainly felt by bimanual examination.

In Sims' position, with his speculum in place, a properly curved sound can be readily passed to the os internum; at this point there may be some resistance, and as the instrument passes, the patient usually complains of sharp pain. The fundus may be found sensitive to the touch of the sound, and not infrequently its withdrawal is followed by blood, although it may have been passed with the greatest care.

Not infrequently such a case is complicated by more or less hyperesthesia and perhaps some atresia of the vagina and sensitive ovaries, with an abnormal fulness especially marked on the left side in the broad ligament, undoubtedly in many cases due to varicose veins. I usually begin the local treatment of such a case by inserting a small piece of borated cotton, saturated with pure glycerin, against the anterior lip of the cervix, crowding it somewhat backward in the vagina. The cotton rolls into a ball which tends to displace the cervix backward and lift the fundus. A string is left attached to the cotton, by means of which the patient can remove it, which she is instructed to do in twenty-four hours. The object of this tampon is to soften the tissues, which it does by causing a profuse watery secretion. It seems to improve the local circulation, and invariably tends to relieve the hyperesthesia of the vagina and pelvic tissues. The pledgets are put in two or three times a week, until the patient bears the vaginal examination without pain. The patient is also

instructed to use hot-water vaginal douches during the intervening days.

If the case is complicated by peri-uterine congestion or "sub-acute inflammation," the simple glycerin pledgets are replaced by similar pledgets saturated with a mixture of alum one part to pure glycerin fifteen parts, and sufficient carbolic acid to act as a disinfectant, usually one drachm to the pint. The size of the pledgets is gradually increased. As a rule, an ordinary case will be much changed in two or three weeks by this preparatory treatment; the vagina is less sensitive and larger, the cervix is less pointed and its axis directed farther backward, the peri-uterine tissues are softened and less painful upon examination. Occasionally a case of long standing, in which the nervous system has been seriously affected, will require six or eight weeks of such treatment before the next step can be safely undertaken.

*Dilatation.*—The patient being in Sims' position, the vagina is sponged out with a solution of 1 to 3000 of bichloride or 1 to 20 of carbolic acid. All instruments are kept in a solution of carbolic acid. Then a Sims' uterine dilator is inserted into the uterine canal. The dilator, when properly curved, can be passed almost as easily as a curved sound; the blades should be forced apart about two lines. The amount of force required for this amount of dilatation will, of course, vary greatly, but usually in old cases it is considerable, especially those of the imperfectly developed type. This procedure causes more or less, and in some cases intense pain, similar to that due to menstruation. The dilator is withdrawn and a cervical protector introduced to the os internum. An applicator previously wrapped with cotton is dipped into pure carbolic acid; the free acid having been rubbed off, it is passed through the tube of the protector directly to the os internum, and thoroughly applied by turning it about and slightly withdrawing the tube and applicator. About twenty grains of iodoform are blown against the cervix as the speculum is withdrawn. In some cases the pain is immediately relieved, rarely the patient complains of cramping pain for several hours. When properly performed as directed above, and if antiseptic precautions were used, I have never seen any harm from this treatment. The first dilatation can be made at the patient's home, and she is kept in bed for the rest of



the day or until all disturbance has ceased. As a rule, it is best to allow at least a week to pass before the dilatation is repeated. The glycerin pledgets can be inserted as usual. Sometimes I repeat the dilatation three times between the menses, but usually twice is sufficient, and if the dilatation can be carried to the point where the blades are four lines apart at the os externum, the dysmenorrhea is relieved in the majority of cases where there is no active endometritis or endocervicitis, and in favorable cases it is the beginning of a permanent cure. Much will depend on the condition of the general health and on the readiness with which the lining membranes of the uterine canal respond to the treatment. Where the tissues are not sensitive, and the uterus is small and atrophied, I use iodine in place of carbolic acid, or I apply electricity directly to the uterine tissues and persist in the treatment until the uterus develops.

Besides the vaginal and peri-uterine hyperesthesia, any complication such as vaginitis, acute endo-cervicitis, local cellulitis, or peritonitis should be treated before resorting to dilatation for the removal of dysmenorrhea. In those cases where catarrhal disease or anemia are active agents in producing the stenosis or hyperesthesia of the os internum, the dysmenorrhea will of course be likely to return unless these conditions are permanently corrected. The changes produced by this treatment are: a shortening of the cervix, a nearer approach to the normal direction of the axis and shape of the vaginal cervix, and a complete alteration in the mucous lining. Any subacute congestion with faulty secretions is usually cured, the secretion of the cervix becoming transparent like the white of an egg. After this treatment, a sound can be passed to the fundus without causing pain.

In married women, if nothing is done to prevent impregnation, sterility will often be cured by this simple treatment. But in a certain number of cases this method gives only temporary relief. The stenosis is accompanied by so great a change in the muscular walls, or there is so strong a tendency to spasmodic contraction of the os internum, that simple dilatation will not cure the dysmenorrhea or sterility, and it becomes necessary to resort to Sims' operation which is a combination of divulsion and incision, with the use of a glass plug or

stem pessary, or, what I like better, a hard-rubber drainage tube.

*Sims' Operation.*—In some cases the simple dilatation cures the dysmenorrhea, but not the sterility, and here again it is necessary to resort to Sims' method of operation. I do the operation as performed by Dr. Sims, with some modifications. I employ the above preparatory treatment with pledgets of cotton saturated with glycerin, etc., always carefully treating any complication such as peri-uterine inflammation beforehand; for as long as the uterus is fixed by old adhesions, any dilatation or operative procedure is attended with risk. When the uterus is movable, so that the cervix with little resistance or pain can be pulled well down to the vulva, while the patient is in Sims' position, it is usually safe to operate. My patient is instructed to take a laxative and bath, to have fresh clothing, bedding, etc., and to take a vaginal douche of solution of bichloride one to three thousand, preparatory to the operation. Instruments needed: one doz. sponge holders with new aseptic sponges; Sims' uterotome; Sims' speculum, depressor, forceps, sound-tenacula (two), flexible director, uterine dilator, applicator, hard-rubber or glass plug, a needle holder, and a threaded slightly curved needle with silver wire, to be used in case the circular artery is severed. A straight bistoury can be used in place of a Sims' uterome and, unless the tissues above the os internum are to be divided, it will do nearly as well. These instruments are all immersed in five-per-cent solution of carbolic acid. The patient being etherized, is put in Sims' position; the vagina is carefully sponged out with the one to three thousand bichloride solution, a strong tenaculum is fixed in the anterior lip of the cervix which is pulled to the vulva. With the sound the uterus is explored; the dilator is then introduced and the uterine canal slightly dilated so as to allow the blade of the uterotome to pass readily. The straight blade of the latter is then introduced, cutting edge backward, up to the os internum or the point of flexion; the posterior wall of the cervix is divided in the median line for half an inch or more, according to the length of the infra-vaginal part of the cervix; the lining mucous membrane is divided the full length of the cervix, and the muscular walls are also divided for some distance under the external mucous membrane covering the infra-

vaginal cervix. As a rule, there is very little bleeding, and where the circular artery is normally placed it will not be divided. It is a mistake to divide all the muscles, and especially the vaginal mucous membrane of the cervix, as far as the vaginal junction. After this incision, the dilator is introduced and the os internum freely divulsed. Dr. Sims always divided the anterior wall at the os internum with his uterotome, but I have lately trusted to the dilators to overcome all constriction at this point, for I have never seen a full-sized plug introduced after incision as far as the os internum without the free use of the dilators. The dilatation should be done slowly so as to give time for the tissues to stretch and not tear. In many cases the amount of force needed to overcome the constriction is very great, not less than the full force of the grip of one hand; if this force is kept up for a minute or so, it will usually suffice, and it is well to repeatedly try to introduce the plug, and to be satisfied with the amount of dilatation when a full-sized moderately curved plug can be introduced to its full length (two to two and a quarter inches) and remains in place without being held in position. It is at this point of the operation where failure is often made, for many times the point of the plug, especially if straight, strikes against the os internum at the point of flexion, and forms a pouch behind it, which, with the elongation caused by the stretching of the cervix, allows the tube to enter the cervix almost to its full length. This leads the operator to think that it has entered the cavity of the fundus, and he inserts his tampon, etc. Now the test whether the plug has passed the os internum and entered the fundus is that it will remain in place and not tend to spring back and out as soon as pressure on it is removed. Once it is well through the os internum, it is grasped by the circular fibres and remains in place. In some cases, of course, it is more difficult to pass the tube than in others. Where the flexion is decided and the lining membrane of the cervix lax, the point of the plug invariably glides behind the os internum and puts the lining membrane and the posterior wall of the cervix on the stretch. More than once I have seen this operation done and the tampon put in to hold the plug forcibly in place, and afterward had the opportunity to prove that the cavity of the fundus had not been entered by either the knife or plug. Even



in the hands of Dr. Sims himself I have seen failure to get a good-sized plug in at one sitting. I am quite certain that this difficulty accounts for some of the failures to do good by this operation. In certain cases it would seem next to impossible to introduce Simpson's or Peaslee's uterotome or any straight instrument without first dilating the external os by tents or other means to relax the os internum and straighten the canal. Straight dilators may be made to pass up into the cervix two inches or even more, but they will push the os forward or to one side and will not enter the cavity of the fundus of the uterus. I have had Sims' dilator made with blades curved so that it can be passed as readily as a sound. It should be of the very best steel so as not to yield under pressure, and the joint should be sufficiently far back to allow the blades to open and remain nearly parallel.

When the plug can be readily passed into and through the os internum, it is well to apply a little pure carbolic acid on an applicator to the lining membrane of the cervix, then to replace the plug, cleanse the vagina, and blow into it a half drachm of iodoform; this is absorbed more slowly and remains longer than any other antiseptic. Dr. Sims made it a rule to insert styptic cotton against the plug and cervix, and then over this a firm tampon, the object being to prevent hemorrhage and at the same time keep the plug in place. I do not place the pledgets until the hemorrhage is completely checked, and usually the pressure of the plug alone stops the bleeding. If the circular artery is cut, I ligate it by passing a silver suture around and twisting it. Then I insert boro-glyceride or other antiseptic pledgets of cotton sprinkled with iodoform, until the vagina is moderately tamponed, the object being mainly to keep the plug in position. After each urination the vulva should be washed with an antiseptic solution (bichloride 1 to 5,000) and an antiseptic dressing kept on it for a week. On the second day I remove the cotton if there is the least odor, and insert fresh pledgets after thoroughly cleansing the vagina; the plug being left undisturbed. On the sixth or seventh day I remove the plug, and after cleansing it and the vagina, I replace it and keep it in position with either iodoform cotton pledgets or a vaginal pessary. It is allowed to remain for a week or two longer, as the case may

seem to require it. Dr. Sims usually removed the plug on the fifth day and left it out, but I prefer to retain it in place until the surface has entirely healed. Unless the plug is a very large one, it can be safely left in place during menstruation. I prefer plugs which have one or more deep grooves in them so as to permit of free drainage, and my objection to the iron or styptic cotton and large firm tampons is, that drainage is obstructed and thus the risk of septicemia increased. When the case has been properly prepared and the above precautions have been taken, the risk is very slight and the result most satisfactory. To get good results, one must do all that can be done to improve the general health of the patient, and give the proper preparatory treatment which not only lessens the chances of doing harm, but also enables one to carefully study the case and patient and eliminate complications, such as diseased tubes or ovaries, etc. If one takes a delicate and weak woman, with an imperfectly developed uterus, with a degenerate and granular eroded mucous lining, and divides the cervix *too freely*, he may relieve the dysmenorrhea, but he will do his patient harm, and sooner or later she will have an everted and diseased cervix resembling a lacerated cervix, and requiring the same treatment.

If one dilates the cervix or divides it with a knife, while the patient has a diseased tube tense with an irritating or poisonous fluid, or a diseased ovary filled with tense cysts, any of these may burst or break and cause local peritonitis. Or if one operates, without using antiseptics or preparatory treatment, upon a patient with a diseased mucous membrane, he may cause local poisoning of the deeper uterine or peri-uterine tissues, and get what we call inflammation; but this is the fault of the operator and not of the operation. Eliminate failures to diagnose serious complication, and blood poisoning from lack of care in cleanliness or from prejudice against the use of antiseptics, and this operation becomes one of the simplest in uterine surgery.

I have never believed in the necessity of the bilateral operation. In those cases where Dr. Sims recommended it, I would dilate and drain, or divulse and keep open with a drainage tube.

If the dilatation is imperfectly done, the relief, of course, is

only temporary, but when thoroughly done and repeated, say twice in two or three months, it will often effect a permanent cure in cases of even ten years' standing. I know several whom I treated as long ago as six or eight years and they are well to-day. Undoubtedly there are cases that can be relieved of dysmenorrhea, but not permanently cured of sterility; for there are some cases in which the organs have reached only a very imperfect degree of development, or have atrophied and changed so much that they cannot be fully developed by any treatment. In some of these the local application of electricity will do good, by stimulating development. It is a simple matter to apply electricity, but its use must be kept up for several weeks before it will have a perceptible effect. The galvano-electric pessary of Simpson may be used in certain indolent cases, but it must be closely watched. A good drainage tube of hard-rubber is much safer and perhaps equally efficacious. If a woman with anteflexion is to marry, she should marry early in life, for the chances of pregnancy and full development then are undoubtedly better than later. I am certain it helps these cases, for normal erotic excitement stimulates development and averts abnormal functional derangement and bad habits.

Child-bearing is the best means of completing development and making a permanent cure of such cases. One would expect that small imperfectly developed uteri would be torn more frequently than in the average cases of labor, and this is a fact, especially if the labor is quick or premature, for the cervix requires time to get into the best condition for full expansion. I have found that more depends upon the condition of the mucous membrane at the time of the laceration and shortly after labor, than upon the size of the os or the extent of the tear. Diseased tissues heal badly and tend to swell, evert, etc.

*Sponge tents.*—For more than ten years I have not used tents in these cases. Without doubt, some cases can be cured with them, but their use is more dangerous than that of the dilator, and much more uncertain in results. I have my tents made with iodoform mixed in the gum, and I use iodoform and bichloride tampons to keep them in place. I never allow them to remain more than twelve hours, for they form a most excellent nidus for germs, and for a time they prevent drainage



from a very much irritated, rapidly secreting mucous membrane.

DILATATION BY SOUND.—Whenever I see a specialist using a set of graded uterine bougies or sounds, especially such as are nearly straight, I know that he is travelling over an old road that was pointed out by Mackintosh many years ago. The uterus is too movable and elastic to permit of the use of sounds to the best advantage, and many a case has been sounded up to the os internum and not beyond.

To Simpson belongs the credit of the first uterotome, but Sims was the first to perfect that instrument and to understand fully how to use it. He pointed out the mistake of using automatic and straight uterotomes in the uterus.

In June, 1873, Dr. John Ball, of Brooklyn, N. Y., read a paper before the Medical Society of Kings County, on rapid dilatation of the cervix uteri for the relief of stricture, etc., and in 1877 he presented a paper on the same subject before the N. Y. State Medical Society. About this time Ellinger, of Stuttgart, advocated forcible dilatation. Dr. Ball reported a number of cases successfully treated by rapid dilatation. There can be no question about the success of divulsion, but there are many cases which can be perfectly cured by moderate dilatation, which is not only less dangerous, but I think gives better results in those cases where imperfect development is more marked than spasmodic stricture. For it is not a powerful and spasmodically constricting muscle that is to be overcome, but a feeble degenerate organ that needs to be stimulated to healthy development. In cases of atresia of the cervix where the vaginal cervix is large and only slightly flexed and pointed, where Dr. Sims advised the bilateral incision, I do use divulsion and insert a drainage tube, and I do the same in cases of chronic catarrh where there is indication of spasmodic stricture of the cervix. But when I am treating sterility, and have a flexed, hard, and pointed cervix to deal with, I am sure that the knife, applied as stated above, is an improvement upon simple divulsion, for the os externum tends to contract and close the opening after the latter operation, unless the tissues are torn by the instrument. Still I confess that we could more easily dispense with the uterotome than with uterine dilators. There is less risk in

opening the uterine canal with dilators than with the uterotome, but dilators can do serious harm when the dilatation is carried too far, and if one uses a screw to force open the dilators, the risk is greater than when he uses his hand or hands to regulate the amount of dilatation.

USE OF PESSARIES IN ANTEFLEXION.—If the use of pessaries in such cases had never been taught, much harm would have been averted and more progress made in the right direction. Very rarely only can we afford some relief by the use of an anteflexion pessary, but at best it is only palliative and can be dispensed with. It is not so much by straightening the flexion that the pessary does good, as by preventing prolapse and perhaps by steadying the fundus. The instrument I prefer is a simple one which I devised and first used six years ago. It is easily introduced, has no joints, carries the cervix backward while it sustains the fundus, and cannot become displaced in the vagina. I usually introduce it with a small silk string attached, and instruct the patient to pull it out whenever it becomes uncomfortable. But I must confess that now I very rarely use any pessary for anteflexion. As to the use of stem-pessaries for straightening the canal, they may do good by stimulating development, but many of them are dangerous instruments.

In some cases, especially those affected with chronic catarrh, I use a glass plug, or I should say drainage tube, made of tough glass, or better, hard rubber, with one or more deep grooves in it. The object is to keep up perfect drainage and perhaps stimulate development, but not with the idea of using a splint on a fractured or bent uterus. The good results obtained by the use of glass stem-pessaries are undoubtedly due to their help in stimulating development, in perfecting drainage, and permanently overcoming the tendency to atresia and hyperesthesia at or near the os internum. Cases of anteflexion acquired after full development I treat very much in the same way if there is stenosis of the cervix or subacute endometritis, but often the peri-uterine inflammation, diseased Fallopian tubes, or other disease associated with it, is the condition to be treated,

COMPLICATIONS.—Anemia, chlorosis, or phthisis are always serious complications, and unless we can improve the general condition, we might expect to relieve some of the symptoms, but

not to cure the imperfect development of the uterus. Catarrh or a low grade of inflammatory condition of the mucous lining would be expected in a degenerated and imperfectly developed uterus, and in various stages it is a common complication. In most cases it is confined to the canal of the cervix, and is usually cured by the same treatment which develops the uterus. When the lining membrane of the fundus is inflamed, the condition is more serious and the symptoms are so changed that the affection is not classed as anteflexion. In these cases, dilatation, drainage, and careful and efficient applications are essential to a cure, and where these fail we can be pretty certain that the disease has extended to the Fallopian tubes, and then we must remove the tubes and ovaries to effect a cure. The tubes are much more frequently involved than has been heretofore supposed. It is this fact which makes gonorrhea and septic endometritis so serious a complication. Diseased tubes explain the majority of peri- and para-uterine complications. The tubes cannot be dilated, drained, and treated locally, and the disease, once there, takes its course.

Some of the conclusions may be concisely stated:

1st. There is undoubtedly a certain number of cases in which a marked degree of anterior curvature gives no painful symptoms.

2d. Anterior displacements are the result, rather than the cause of pathological changes in the uterus. They may add to and sometimes intensify disease, but are rarely, if ever, the primary cause.

3d. Dysmenorrhea with anteflexion is rarely, if ever, chiefly and directly due to the flexion, but the latter in some cases may aggravate the pathological conditions which are the real cause of the pain.

4th. The attempt to correct anterior displacements by the use of pessaries is rarely, if ever, sufficient to effect a cure, unless the cervix is dilated at the same time or other pathological conditions are treated. The use of mechanical supports may give some relief, but they are merely palliative, and as used by many they frequently do harm.

5th. The true morbid condition of the uterus in most cases of anteflexion is one of imperfect development, while the uterine canal is more or less stenosed by the degenerate and contracted



state of the uterine tissues, and the mucous lining is degenerate and atrophied, often hyperesthetic, especially in that part of the organ where the circular fibres are most powerful and contracted, at the os internum.

6th. If the above is true, the treatment obviously would be to stimulate development by improving the general health and by the local use of electricity, to relieve the stenosis by dilatation or division and divulsion, to perfect the drainage, and bring about a healthy condition of the mucous lining.

The preceding paper was read before the New York Academy of Medicine, on November 28th, 1884. The following is a synopsis of the discussion.

DR. H. T. HANKS said he was certainly very thankful to Dr. Wylie for his excellent paper upon this subject, especially because it was a subject worthy of consideration by gynecologists. He had been very much interested in the statement made by Professor Thomas in his address before the New York State Medical Association, namely, that there was such a thing as curing anteflexion and dysmenorrhea by rapid and forcible divulsion, and he thought many of us had yet to learn that this procedure could be resorted to with almost uniform benefit. Dr. Hanks believed that four-fifths of all cases of anteflexion which needed treatment could be cured by rapid and forcible dilatation. The results of treatment in his cases had been the same as Dr. Wylie had reported; that is, he had effected cure in thirty-three or four out of thirty-five cases. He had found the hard-rubber dilators to which his name had been attached as serviceable, in the majority of cases, as any instrument which could be employed. He had used the instruments recommended by Dr. Ball, Dr. Sims, Dr. Goodell, Dr. Ellinger, and others, and they were excellent instruments.

One reason for resorting to this method of treatment was the fact that there was no deformity after rapid and forcible divulsion, and there was no doubt that a new condition of the tissues was established as a result of the thickening which took place after the operation, and which in some cases requires some little time to remove. If the canal is dilated to fifteen or eighteen, American scale, it will not contract, as some had supposed.

With reference to after-treatment, he always kept his patients in bed for six or eight days, and more or less under the influence of opium. It might not be necessary, but he had always done it, and had not had pelvic peritonitis develop until his patients had gotten up and been about the house, and it was evident that the pelvic inflammation was due to some indiscretion.

With reference to instruments, he thought that Dr. Ball's, if it could be bent, would be better than any which had been devised.

There was one peculiarity which he wished to mention, and it was that dilatation was apparently done by pressing the hands together, but it would be noticed that the points of the instrument within the internal os did not always dilate so much as was supposed.

He did not claim so much for the hard-rubber dilators as formerly, but he always knew when one passed through the internal os, and the operator always knew just how much the internal os was dilated. He thought that this was one of the advantages which the hard-rubber dilator had over the Sims or the Peaslee sound.

Another advantage which the hard-rubber instrument gave was that it could be turned over and retroflexion of the uterus produced. In this manner, the anterior wall of the cervix was

stretched somewhat, which he had thought was of some advantage. However, either instrument could do the work well in the hands of skilled operators.

THE CHAIRMAN had been especially pleased to hear Dr. Wylie direct attention in his paper to the necessity of having the patient in a good general condition before resorting to any operation. Some years ago he performed rapid dilatation in many cases, and produced pelvic cellulitis in many instances, and in some pelvic peritonitis, and while Dr. Hanks had expressed the urgent desire that the teaching of the treatment by rapid dilatation should be repeated frequently, the Chairman hoped that with each instruction there would be given the caution that the pelvic organs should be in as healthy a condition as possible under the circumstances, before resorting to any operative procedure, as he had become abundantly satisfied that the ill results which followed in his cases were due to the lack of this preparatory treatment.

With reference to instruments, he thought a good deal depended upon the dexterity of the operator. A man was very poorly qualified to dilate the cervix if he was unable to say whether or not the instrument had entered the os internum.

Some years ago he devised an instrument for dilating the os internum, and thought that it, more than any other instrument, was capable of entering that portion of the canal with the greatest ease, and it had the capacity of dilating the internal os to any extent desired.

Notwithstanding, he thought he had gained a great deal in the way of the dilator, it seemed to him that the best dilator was the circular wedge, especially for the uterine canal.

With reference to the point made by Dr. Hanks concerning the capacity of the instrument to retroflex the uterus, it was a question whether that manipulation would be allowable in very many cases, because the violence done in the dilatation of the os internum was about as much as could safely be endured at one sitting, particularly if the patient was not under an anesthetic.

DR. HANKS thought no judicious surgeon would attempt to dilate the uterine canal without thoroughly anesthetizing his patient. With regard to sounds, no one should attempt to use an instrument larger than a small Simpson sound, if he wished to dilate without an anesthetic.

THE CHAIRMAN directed attention to two other points which Dr. Wylie had mentioned. First, Dr. Wylie seldom makes an incision in the anterior wall of the cervix, and in that he departs from the method employed by Dr. Sims, and does so without giving his reasons. It would seem that if the incision was necessary at all, it would be necessary at that point.

The Chairman also suggested whether it would not be well to introduce a smaller pessary with an olive bulb to prevent union after the incision had been made.

The author of the paper also made reference to the rubber stem pessary with a groove in its side. The Chairman supposed the preference for the hard rubber was the fact that the groove could



not be made in glass. Other things being equal, he should prefer glass. The Chairman then exhibited several glass tubes, which he had used, having a hole through the centre, and they had been made so strong that it was impossible to break them with the fingers.

DR. SELL said that if there was any comparison to be made between divulsion in the cervix uteri and the same procedure in the urethra of the male, he would say that the plan advocated by Dr. Wylie was very much the best.

He could not exactly say that we had reached the time when dilators, such as Peaslee's, should be altogether thrown aside. He had used them when divulsion was not in vogue, and had succeeded in curing his patients.

He had been pleased to hear that the best method of treatment was pregnancy, and he had succeeded in many cases with the introduction of Peaslee's sound; sometimes he used a tent, occasionally slightly nicking the cervix just sufficiently to admit the probe, in establishing a condition which permitted pregnancy and cure of the patient. He was especially pleased with the remarks made by Dr. Wylie concerning the preparatory treatment, but did not hear anything especial with reference to medical treatment, as such, in these cases. Dr. Sell then spoke of the beneficial effects produced by the internal administration of certain remedies, such as *belonias*, *caulophyllum*, *cimicifuga*, *nux vomica*, etc. With reference to the use of pessaries, he thought that they could be used, not to abuse the patient and set up inflammation, but as tampons are used with reference to special conditions. He believed in preparatory treatment, and, when the patient had reached a certain point, a pessary could be used with advantage, and then by the internal administration of remedies the dysmenorrhea could be overcome, the leucorrhea relieved, and a cure would follow in very many cases.

DR. A. M. JACOBUS had seen Dr. Wylie operate upon a large number of cases with or without anesthetics, and had seen most excellent results follow. It might be better to resort to an anesthetic, but there were very many cases in which divulsion could be practised safely without an anesthetic. He had not seen a patient die after divulsion, and he had seen a fatal result follow very slight dilatation and with a steel sound. He thought that after the patient had passed two or three years of menstrual life without being relieved, local treatment should be begun to develop the uterus, and that the patient in consequence would be less likely to require future treatment for the dysmenorrhea and sterility.

He did not believe that there was a single anteflexion pessary which could be used with safety. Of all the instruments which he had employed, or seen used, he preferred that used by Dr. Wylie to any other.

With regard to preparatory treatment, it was exceedingly important, as had already been mentioned by Dr. Wylie. He thought that the uterus could be straightened up considerably by means

of the tampon, so much so that the divulsor could be used later without special difficulty.

DR. WYLIE, in closing the discussion, said that he had not had a single case of cellulitis occur as a result of operative procedure in private practice. Further, that he had no special faith in the efficacy of remedies, any more than that they might improve the general condition, and in that way help a weak organ. He thought probably that electricity would do more good than any special remedies which might be administered internally. His faith in treating symptoms had not been very great. As to the use of pessaries in anteflexion, he was satisfied that practically they were of but little value, although he was aware that some of our very best men employed them a great deal. The great trouble was that when a gynecologist was thoroughly interested in a pessary he was very apt to make the patient fit the pessary, instead of the pessary fitting the patient. He also thought that glass, for some reasons, was preferable to hard-rubber for the plugs as a general rule, but it being so much more difficult to obtain with grooves deep enough to act as drainage tubes, he had substituted the hard-rubber.

The reason why he seldom performed Dr. Sims' operation was because he had found that by slightly dilating the canal, merely enough to give free drainage, the circulation of the mucous membrane had been improved, and then by the application of remedies the development and improvement of its general condition had been so great that it had been unnecessary to resort to further procedure. He had not found it necessary to give an anesthetic unless the tissue of the cervix was very hard.

Dr. Wylie's reason for not cutting the os internum was because he looked upon it very much as a sphincter, and if he wished to remove its spasmodic action he did not cut it, but dilated it a little, thus stretching the tissues beneath the mucous membrane. Besides, he had seen Dr. Sims cut and then fail to introduce the glass plug. Again, when he found that he could accomplish with the divulsor what Dr. Sims had endeavored to do with the knife first and then using the divulsor, he had ceased to use the knife. The ease with which the cervix elongates had caused him to use great care in introducing the dilators.

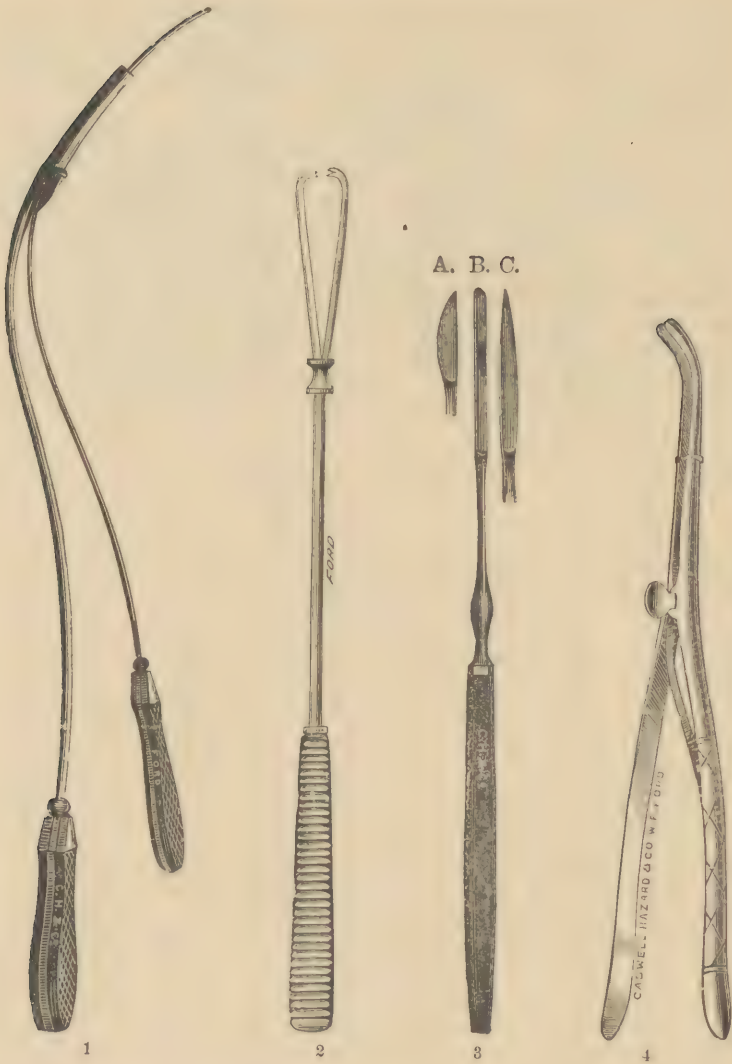
When he dilates, as he called it, he did it only after he became perfectly familiar with the case, had given it preparatory treatment, and had learned the complications. If it was a case which did not need divulsion, then he dilated. He resorted to divulsion or the use of the knife, in not more than one in six, perhaps ten cases, where ten years ago he would have resorted to these measures, simply because he had found that dilatation would accomplish all that was desired. When he divulsed, it was in cases in which he had resorted first to preparatory treatment and then to dilatation, and finally adopted divulsion because dilatation did not effect a cure. When he divulses he generally does it with the patient under the influence of ether, and he would put them to bed and keep them there, not for three or four days, but for two

weeks. He never allows them to rise from the bed with the stem pessary or drainage-tube in position, unless it is absolutely necessary. He prefers, as a rule, to have the patient wear the tube after one menstruation; it may be necessary to remove it during menstruation and wear it afterward.

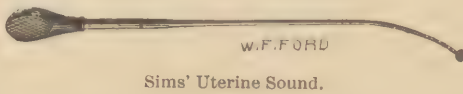
Dr. SELL said he had used electricity and had found it an excellent method of treatment. He would further remark that dispensary treatment was somewhat different from that which could be adopted in private practice, and thought it well to have medicinal means to resort to independent of operative procedure.

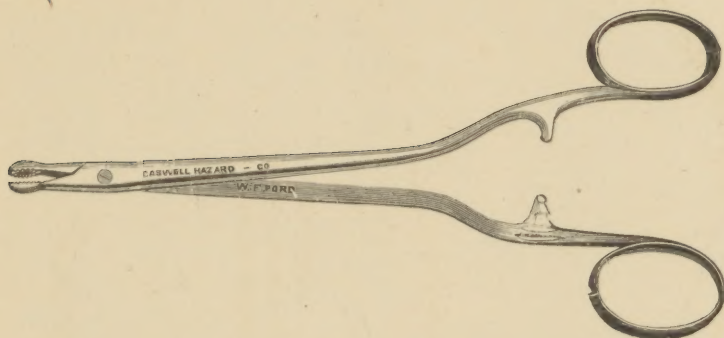
THE CHAIRMAN referred to one point which he had noticed in seeing Dr. Wylie operate, namely, that the pressure made upon the handles of the divulsor was intermittent, and that the instrument was turned slightly at short intervals, so that the intra-uterine pressure was brought to bear upon all parts of the circumference of the cervical canal.



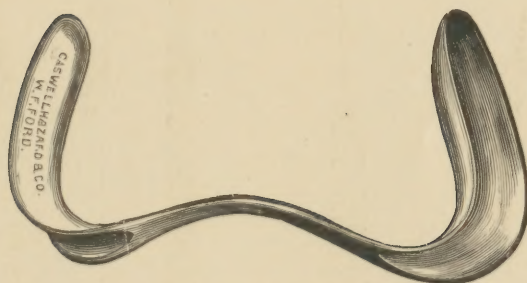


1, Wylie's cervical probe and applicator; 2, Sims' sponge-holder; 3, set of Sims' knives; 4, Sims' modified dilator.

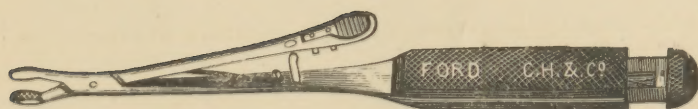




Sims' needle-holder.



Sims' vaginal speculum.



Sims' revolving knife.







